

REMARKS/ARGUMENTS

The subject matter of Claim 3 has been incorporated into Claim 1, and Claim 2 has been cancelled. Claims 21-24 have been amended to define the substrate as a “hydrophilic lithographic” substrate as described on page 5 (line 24) of the original specification. Claim 21 has also been amended to refer to Claim 1 instead of cancelled Claim 2.

New Claim 69 is similar to amended Claim 21 except that the radiation-sensitive composition “consists essentially of” the recited components including the polyhydric phenol developability-enhancing compound.

Applicants are appreciative that the previous rejection has been withdrawn, but they submit that the new rejection is also incorrect and should be withdrawn for the reasons provided below.

Rejection Under 35 U.S.C. §103(a)

Claims 1-24, 37-39, and 56-58 have been rejected as unpatentable over WO 01/096682 (Levanon et al.) with either of U.S. Patents 6,373,212 or 6,806,019 (both Takahashi). This rejection is respectfully traversed. For purposes of simplification, both secondary references will be considered as one since they have essentially the same disclosure.

USPTO Rejection:

The Office Action argues that the claimed invention is unpatentable because Levanon et al. teaches imageable elements that contain an acetal polymer as well as other resins and additives. The Office Action admits that Levanon et al. fails to describe or teach “dissolution accelerators”. The secondary Takahashi references are cited for their alleged teaching about adding dissolution accelerators to photoresist compositions, which dissolution accelerators are considered to include polyhydric phenols. The Office Action argues that it would be obvious for a skilled artisan to prepare the material of Levanon et al. by adding the resins of Takahashi with a reasonable expectation of achieving a material with high etch resistance.

Applicants' Rebuttal:

Applicants' presently claimed invention is directed to radiation-sensitive compositions comprising an acetal resin, developability-enhancing compound, such as a polyhydric phenol, and an infrared light-to-heat converting compound. These compositions can be applied to hydrophilic lithographic substrates to provide imageable elements such as lithographic printing plate precursors.

In Claims 20, 24, and 69 Applicants call for specific imageable elements that are lithographic printing plate precursors and contain developability-enhancing compounds. Such elements clearly different than photoresists described in the literature.

The use of the developability-enhancing compounds provides increased "sensitivity" to the compositions whereby they can be imaged with less infrared radiation energy to provide the same desired level of developability in the imaged regions as compared to when the developability-enhancing compounds are omitted. Thus, the alkaline developer solubility of the imaged regions is increased while non-exposed regions are not significantly affected. Moreover, the invention composition is stable before exposure and has excellent handling properties.

While development-enhancing compounds were known at the time the present invention was made for use with some resins including novolaks, it was not known to use the specific compounds called for in the present application (such as polyhydric phenols) with polyvinyl acetals. In addition, it would not be expected by a skilled artisan that developability-enhancing compounds used with novolaks, for example, would have the same or similar benefit when used with polyvinyl acetals. The two types of polymers are different in structure, mode of preparation, and properties. They are not automatically interchangeable in every context of technical application. The utility of polyvinyl acetals in imaging compositions is derived from different chemical groups and their interactions compared to novolak resins.

For this reason, it is believed that a skilled artisan in lithographic printing logically would not combine the teaching in the Takahasi references with the teaching in Levanon et al.

The effectiveness of development enhancement or acceleration using, for example, a polyhydric phenol depends upon its specific intermolecular interaction with the given polymer binder in the composition. Both of the Takahashi references describe imaging compositions containing predominantly novolak resins and naphthoquinonediazide (“NQD”) photosensitizing compounds. The novolak resins alone are insufficient to provide the desired solubility differential between exposed and non-exposed regions. Thus, the NQD photosensitizers and various phenolic compounds are included. The NQD photosensitizers act as development inhibitors in the non-exposed regions and development accelerators in the exposed regions, thereby increasing the solubility differential.

Levanon et al., as admitted in the Office Action, is directed to imaging compositions containing predominantly polyvinyl acetals. Developability-enhancing compounds will react differently in each imaging composition because of the different intermolecular interactions. Compounds that may work to enhance development of a novolak-containing composition are not necessarily be expected to work to enhance development of a polyvinyl acetal composition. The Takahashi compositions require the use of NQD photosensitizers to help provide solubility differentiation. Such compositions are typical of UV-sensitive compositions and elements. In contrast, Levanon et al. (and the presently claimed invention) do not rely on the presence of NQD photosensitizers because, firstly they are not using UV imaging chemistry and methods, and secondly, they are using different polymers (polyvinyl acetals vs. novolaks).

The developer solubility differential between the exposed and non-exposed regions in imaged IR-sensitive compositions is known to be much smaller than the developer solubility differential in imaged UV-sensitive compositions. As a result, there would be a larger selection of compounds that would be useful to make some difference in the developer solubility differential of UV-sensitive compositions, than would be useful for IR-sensitive compositions. In other words, the number of compounds useful in IR-sensitive compositions would be expected to be a much smaller. Thus, a skilled artisan would not have a reasonable expectation that any or all of the development enhancing compounds

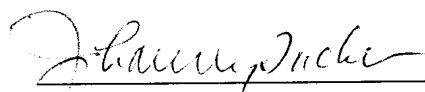
used in UV-sensitive compositions such as Takahashi would necessarily provide the same benefits in the IR-sensitive compositions.

The Office Action argues that it would have been obvious to a skilled artisan prepare the material of Levanon et al. with the resins of either Takahashi reference. Even if this is true, such a combination is not suggestive of the presently claimed invention. The Office Action appears to be suggesting that the polyvinyl acetals of Levanon et al. would be readily combined with the novolaks of Takahashi. Such a combination is irrelevant to the presently claimed invention. Applicants are claiming the use of a polyvinyl acetal, IR-sensitive compound, and developability-enhancing compound in a composition and element, not the combination of a polyvinyl acetal and novolak.

In summary, Applicants' presently claimed invention is directed to radiation-sensitive compositions and imageable elements containing a polyvinyl acetal, IR radiation-to-heat converting compound, and unique developability-enhancing compounds. This combination of components and their utility in lithographic printing plate precursors was not previously known or suggested, especially since the cited Levanon et al. and Takahashi references teach very different imaging compositions that would not be combined by a skilled artisan.

In view of the foregoing amendments and remarks, reconsideration of this patent application is respectfully requested. A prompt and favorable action by the examiner is earnestly solicited.

Respectfully submitted,



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If the Examiner is unable to reach the Applicant(s) Attorney at the telephone number provided, the Examiner is requested to communicate with Eastman Kodak Company Patent Operations at (585) 477-4656.